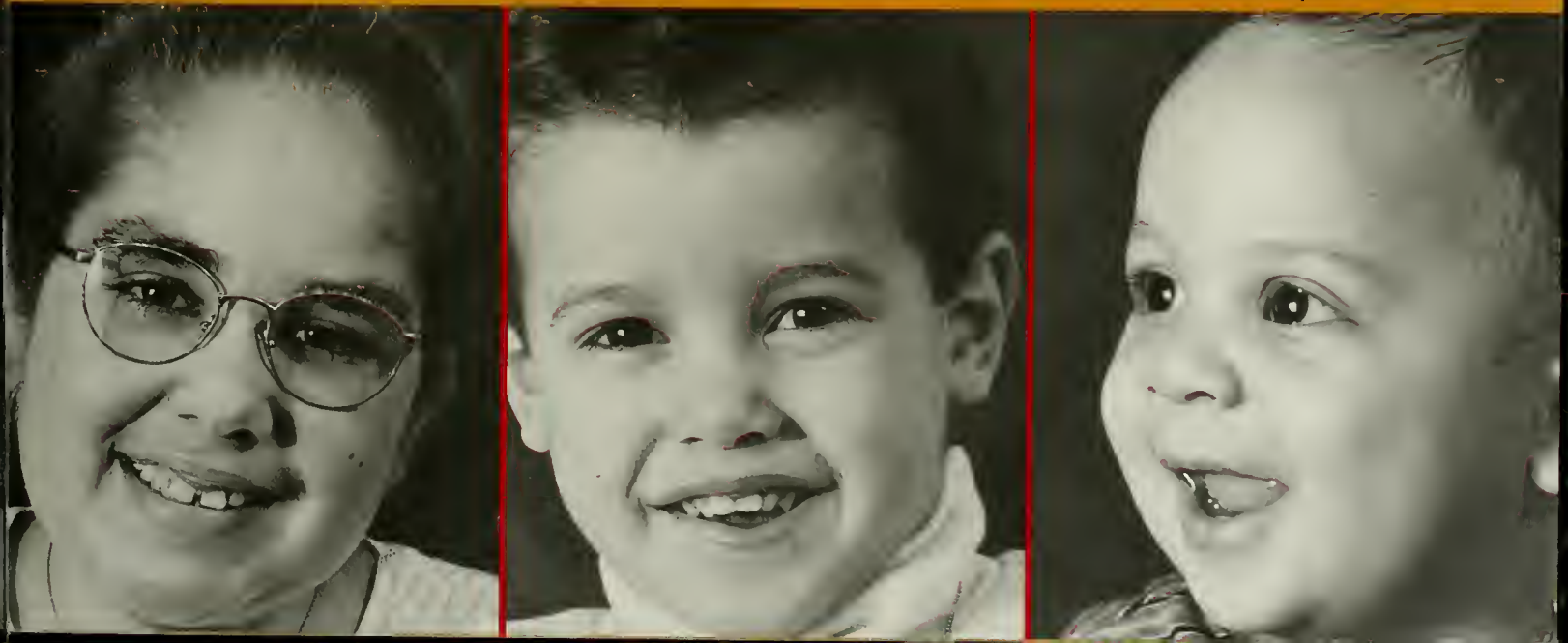
THE FACES THAT KEEP US STRIVING TO GENERATE NEW KNOWLEDGE AND IMPROVE THE HEALTH

OF OUR CHILDREN: THESE ARE THE FACES OF OUR FUTURE. CHILDREN'S HOSPITAL, BOSTON 1997



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mission

For Children's *to remain the world's premier pediatric academic medical center, we must continue to affirm the four elements of our mission—* patient care, training, research *and* service to the community.

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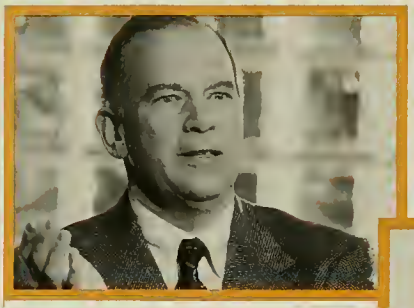


DAVID S. WEINER | PRESIDENT AND CEO

PHILIP A. PIZZO, M.D. | PHYSICIAN-IN-CHIEF

MESSAGE FROM *Children's Hospital*

At Children's Hospital, Boston, we place great emphasis on a healthy future. To the young patients we serve, there is no better promise we can give than the chance for them to grow up and lead healthy lives. As an institution, Children's must also work to ensure a healthy future for itself, so that the bedrock values on which the hospital was founded can be perpetuated into the new order of the 21st century. In fiscal year 1997, the period that this report chronicles, we began a careful process of fulfilling the strategic decision we made in the spring of 1996: to uphold Children's mission and remain an independent institution dedicated to caring for children. Accordingly, we have worked with energy and passion both to raise the hospital's world-class care at 300 Longwood Avenue to new standards of quality, and to create a system of care for the future, one that spreads our commitment to children throughout the region and beyond.

As we have begun to carry out our chosen course over the past year, it has been an exciting, inspiring time to be at Children's. Throughout the hospital there has been a palpable sense of renewal and conviction—that by taking "the road less travelled" in a mercurial health care marketplace that encourages mergers and stresses bottom lines, we have affirmed our unwavering belief in putting the interests of children first. Such conviction was embodied in the campaign, "A Reason to Believe," which celebrated Children's unequaled care, its outstanding care givers and its driven search for solutions to childhood illness. This message reinforced the pride we at Children's feel, while bringing comfort and hope to those who might need our care.

Even as we celebrated our decision to remain independent, we recognized that the success of that decision rests, perhaps paradoxically, on collaboration. Indeed, 1997 was a year defined by collaborations, both outside and within the hospital. Believing that alignments with community providers and institutions will help achieve our

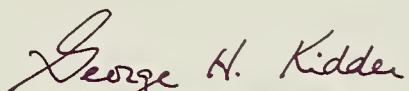
goal of creating a far-reaching system of care for children, we signed agreements to extend Children's specialty services throughout the region. We continued our commitment to broader access to child health care by building community partnerships and by working with others on a local and national level to advocate for children in need. At the same time, we worked to strengthen relationships, and share resources and ideas, with some of our sister institutions in the Longwood Medical Area and with Harvard Medical School. And as philanthropy begins to play an increasingly critical role in supporting Children's mission, we made a commitment to expand our fund-raising program. With traditional sources of support diminishing, we must reach out to the individuals, institutions and communities we serve, to ask them to invest in our collective future.

The past year has also been one of internal collaboration—of interdependence and exchange among members of Children's medical staff, administration and board, who have come together in new ways to examine how we might reorganize ourselves to carry the institution into the future. Our challenge is to continue to operate with the values, quality and internal resources that have long been our hallmark, while we simultaneously work to improve our customer service at all levels of the institution, and to find new ways to deliver specialty care to the broadest possible population. A spirit of collaboration has also infused the research and clinical areas of the hospital, as research interests are being combined across departments, and training is integrated more closely with clinical care.

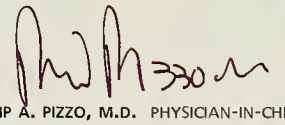
The year 1997 was a time of renewal and growth for Children's Hospital. We reaffirmed and celebrated our four-part mission—to which this report pays tribute—while exploring how best to position ourselves to meet the health care needs of a new century. Throughout all our activities, we have engaged in the critical process of securing the institution's own long-term health, so that we may continue to offer a healthy future for children everywhere.

DAVID S. WEINER PRESIDENT AND CEO

&



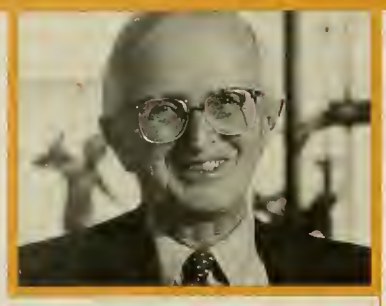
GEORGE H. KIDDER CHAIRMAN EMERITUS



PHILIP A. PIZZO, M.D. PHYSICIAN-IN-CHIEF

Looking Back:

AFTER 16 YEARS ON THE BOARD OF TRUSTEES, GEORGE H. KIDDER STEPS ASIDE



GEORGE H. KIDDER
CHAIRMAN EMERITUS

At the December 1997 meeting of Children's Hospital's Board of Trustees, George H. Kidder, who had served as the chairman of the board since 1992, turned the helm over to William L. Boyan, vice chair and a board member since 1983. Kidder will continue to serve as chairman emeritus.

In his 16 years on the board, Kidder built an impressive legacy of accomplishment and leadership. He served as chairman of the hospital's Campaign for Children, a five-year, $71.5 million fund-raising drive successfully concluded in 1990. He also served as chairman of the board's Development and Executive committees and as a member of the Finance, Investment, Patient Care and a host of other standing and *ad hoc* committees.

In Children's 1991 annual report, Kidder discussed the challenges he saw ahead for the hospital: unyielding competition among Boston hospitals, the obstacles to access and reimbursement presented by managed care, and the unmet health and social needs of the city's children. Although these issues persist in health care today, Kidder united Children's board, administration and medical leadership to confront them, leaving a stronger institution bound by a common mission and strategic direction.

Kidder counts among his most prized accomplishments his role in steering hospital leadership through the process of deciding to remain independent. "George's leadership guided Children's through one of the most challenging periods in the history of health care, and all the while he never wavered in keeping the children at the center of our planning and decision making," says David S. Weiner, Children's president and chief executive officer.

In 1991, Kidder said, "Most of us on the board cannot repair a malformed heart or cure leukemia, but I hope that...we can offer some sound advice, careful analysis and objective guidance that will keep Children's strong and viable." One of his most treasured keepsakes is a framed piece of a cardboard box that sits on his desk. The box contained cardiac "clamshell" catheters that were held up in regulatory red tape after the manufacturer stopped producing the product. According to James E. Lock, M.D., chief of Cardiology, while these catheters were unobtainable, the number of children waiting for treatment grew from 74 to 137, and four children died.

In his position on the board, Kidder stepped in to negotiate the release of the remaining inventory to Children's, enabling Lock to restart his work. In gratitude, Lock wrote a note on a torn corner of the catheter carton that reads, "A young girl had a clamshell placed in a hole in her heart on January 26, 1996. She was inoperable but is now much better. It couldn't have happened without your help. We all thank you very much." Cherishing this tribute, Kidder says, "In all my years of involvement with Children's, I cannot imagine a more wonderful feeling than to have helped a child in that way."

PATIENT CARE

PATIENT CARE

Above:
Julianne Tufts, 18 months

Inset:
David L. Wessel, M.D., with the equipment used to administer nitric oxide

A New Breath: Experimental Treatment Saves Infant's Life

It was the sudden reversal that every parent fears: In just two days, Glenn and Margie Tufts of Bridgewater, Mass., saw their daughter, Julianne, transformed from a happy, healthy 8-week-old baby to a patient in the intensive care unit, gravely ill with a life-threatening lung disease. For nearly five weeks, the Tufts waited and prayed at Children's Hospital, Boston, hoping that the best pediatric care they could find might be able to turn their world right-side up again.

The Tufts' ordeal began unexpectedly at Julianne's well-baby appointment on Thursday, Sept. 12, 1996. During the routine exam, both Margie and Julianne's pediatrician, Peter Rappo, M.D., of Pediatric Associates in Brockton, Mass., noticed a blue pallor to the baby's lips, hands and feet. Concerned, Rappo quickly scheduled Julianne for an echocardiogram. The next day, while the Tufts waited for the results, Julianne became fussy and unlike herself, and Margie knew that something was very wrong. The test results revealed a possible cardiopulmonary disorder, and on Saturday, seeing that Julianne was still blue-tinged and increasingly distressed, Rappo told the Tufts to take

her to Children's Hospital. Within minutes of presenting in Emergency Services, the baby, gasping for breath and frantically crying, was surrounded by a team of emergency medicine, cardiology and pulmonary specialists, who rapidly began performing tests to determine what was wrong. As her condition inexplicably worsened, Julianne was admitted to the Cardiac Intensive Care Unit (CICU).

The next morning, the stunned Tufts met with David L. Wessel, M.D., senior associate in Cardiology and chief of the CICU. Wessel told them that Julianne had primary pulmonary hypertension, a rare condition of unknown origin in which pulmonary blood vessels become constricted and prevent blood from getting to the lungs. This disease is especially rare in infants and is fatal, he said. Two days later, a biopsy confirmed that Julianne's lungs were severely damaged. Consulting with other physicians around the country, Wessel and his colleagues agreed that the only hope for the baby was a lung transplant. This was a long shot, however, since lung transplants had been performed on only two or three infants in the United States before and were extremely risky. With the Tufts' consent, Julianne was immediately listed as a top-priority candidate. "Even though a transplant was our only hope, I just couldn't see our baby going through that," says Margie. "All I could do was pray that it wouldn't come to that, that somehow she would miraculously get better."

Against the odds, Margie's prayers were answered. As a stopgap measure until a donor was found, Wessel and Andrew M. Atz, M.D., assistant in Cardiology, began to treat Julianne with nitric oxide (NO), a naturally occurring gas known to relax constricted blood vessels, and heparin, a drug that stimulates new blood vessel growth. Since 1991, Wessel and colleagues at Children's have been studying the effects of inhaled nitric oxide on pediatric patients with a variety of cardiac and respiratory conditions [see p. 14]. While they had

PATIENT CARE HIGHLIGHTS

UROLOGY NAMED SEPARATE DEPARTMENT

In January 1997, the Division of Urology was made an independent department by Children's Medical Staff Executive Committee and the Board of Trustees. Formerly a division within the Department of Surgery, the Department of Urology is the first new department at Children's since 1968. The new department status recognizes both the evolution of urology into an independent medical and surgical specialty, and the growth of Children's program into the largest pediatric urology service in the world.

CHILDREN'S PHYSICIANS HONORED BY PEERS

Eighty-two physicians from Children's Hospital, Boston, in more than 22 specialties, were ranked among the finest doctors in the country by their peers in *The Best Doctors in America: Northeast Region, 1996–1997*. The referral guide is based on surveys of more than 5,000 physicians in the northeastern United States, who were asked to nominate other physicians whom they consider superior clinicians.

seen the salutary effects of NO on other patients, Wessel and Atz were uncertain that it could have an impact on a condition as severe as Julianne's.

A few days after Julianne was put on NO, however, the doctors noticed that her blueness had diminished, and her normal, pink color was beginning to return. More hopeful, they continued the treatment, and after 10 days, tests showed that Julianne's pulmonary vessels had relaxed to an almost normal level, and her lungs appeared to be recovering. "Everyone in the ICU was doing cartwheels that day," Margie recalls. After three weeks, Julianne showed so much improvement that she was weaned from NO, and moved from the CICU to the cardiac inpatient unit. And a week later, what had only recently seemed beyond hope for Margie and Glenn became reality: Julianne came home.

Looking back on the dramatic course of events, the Tufts feel lucky that Children's and its leading-edge clinical research efforts were available to them. "When I first heard how serious things were for Julianne," says Margie, "I must have called every children's hospital in the country to find out how we could save our little girl. But I soon became confident that we had the best care right here." The Tufts also credit Julianne's team of care givers with helping them get through their darkest times. "Dr. Wessel and Dr. Atz took such

Right:
Julianne Tufts, 18 months

Inset:
Andrew M. Atz, M.D., plays peek-a-boo with Julianne, while her mother, Margie, looks on.

PATIENT CARE HIGHLIGHTS *(continued)*

SURGEON PERFORMS UNPRECEDENTED NERVE TRANSPLANT

In July 1997, Joseph Upton, M.D., senior associate in Surgery (Plastic Surgery), performed a rare nerve transplant on a 1-year-old girl, the youngest nerve recipient ever, who received nerves from her deceased father to correct *in utero* injury to her arms. Only the seventh person-to-person nerve transplant performed in the world, the procedure was also remarkable for being the first transplant of nerve fibers from a parent to a child.

NEW PROGRAM ESTABLISHED TO INTEGRATE FAMILY SERVICES

The Family Services Infrastructure Committee, spearheaded by Patricia Hickey, R.N., M.S., was convened in the spring of 1997 to develop a Family Services Program that provides improved service and communication to families by integrating all of the hospital's family support services under one program. As one of the program's first initiatives, the hospital's Family Education Program, which develops health education materials for families to use at the hospital and at home, merged in July with the Family Resource Center, which offers families a library of materials on health and wellness.

NEW SURGICAL PROCEDURE MAKES PEDIATRIC HISTORY

In June 1997, R. Michael Scott, M.D., associate in Neurosurgery and director of Clinical Pediatric Neurosurgery, led a team of Children's clinicians in the first-ever use of intraoperative magnetic resonance imaging (MRI) on a pediatric patient. This technology, developed at Brigham and Women's Hospital, provides neurosurgeons with sequential images of the brain as the surgery is taking place, allowing for the utmost accuracy in locating and removing deep-seated tumors. The intraoperative MRI was used to remove a one-inch tumor from the deep cerebellum of a 3-year-old boy, in whom a previous operative attempt to remove the tumor had been unsuccessful.

HOSPITAL CELEBRATES TENTH ECMO REUNION

More than 300 patients, family members and staff gathered at Children's Hospital in June 1997 for the tenth reunion of children who were treated with extracorporeal membrane oxygenation (ECMO), a highly advanced form of cardiopulmonary bypass in which blood is oxygenated outside the patient's body, enabling the heart and lungs to heal. Children's has treated hundreds of children with ECMO since 1984 and is one of the largest ECMO centers in the world.

good care of us and made us feel so good about being at Children's Hospital," Margie says. "And the nursing staff was absolutely fabulous. I still say a special prayer every night for all the people at Children's who have done so much for Julianne."

With close follow-up care managed by Atz and Rappo and oxygen treatment at home, Julianne, now an active toddler, has shown no further signs of pulmonary hypertension and is functioning normally for her age. Her lungs are growing healthy, new blood vessels, and the damaged portion has diminished. While her doctors cannot give a definitive prognosis, they are positive about her ability to lead a normal life. "Julianne is a real spitfire," says Atz. "I see very few restrictions for her. And with every month that goes by, I become even more optimistic." Her case has also given Children's physicians optimism about the broader applications of NO. Says Wessel: "Our ongoing clinical research on nitric oxide had revealed many useful clinical applications, but Julianne's treatment was real progress since her condition had previously been thought to be fatal. Her remarkable recovery has encouraged us that NO may provide new hope for even more children."

While Julianne's treatment had a happy ending for her doctors, who gained important new knowledge about nitric oxide, her care at Children's also gave the Tufts the most priceless gift of all: the chance to see their little girl grow up. "I look forward to so much for her," says Margie. "I see her getting on the school bus in a pretty little pink dress. There are no holds barred for Julianne."

DENTAL OUTREACH PROGRAM MARKS 20TH ANNIVERSARY

Children's Mission Hill Dental Outreach Program celebrated its 20th anniversary in 1997. A collaborative effort of the Department of Dentistry, the Division of General Pediatrics, and Parking and Transportation, the program arranges for and transports children at the Farragut and Maurice J. Tobin schools to receive free dental services at Children's outpatient dental clinic.

PATIENT CARE HIGHLIGHTS *(continued)*

NEW CHIEF OF ADOLESCENT MEDICINE NAMED

In January 1997, S. Jean Emans, M.D., was named chief of the Division of Adolescent/Young Adult Medicine. Prior to her appointment, Emans had served as co-chief of the division. Since she began her career at Children's in 1970, Emans has become nationally recognized for her clinical expertise in adolescent gynecology and reproductive endocrinology.

MINIMALLY INVASIVE SURGERY APPLIED TO HEART

In 1997, Richard A. Jonas, M.D., cardiovascular surgeon-in-chief, and Pedro del Nido, M.D., senior associate in Cardiovascular Surgery, further refined techniques to perform minimally invasive cardiac surgery on pediatric patients. Minimally invasive cardiac surgery was first introduced at Children's early in 1996 and has replaced invasive cardiac surgery for certain conditions that previously required a major chest incision. The new procedure has been applied to more than 75 children and has a much shorter recovery time than traditional open-chest surgery.

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RESEARCH

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RESEARCH

BRAVE NEW WORLD: RESEARCHERS PIONEER TISSUE ENGINEERING

The starfish, if it loses an arm, simply grows another. If a chameleon loses its tail, a new one develops in its place. Humans, however, are not so fortunate. An individual in need of a new organ or tissue must either do without, often with dire consequences, or get by with a natural or man-made substitute. The medical need for replacement tissue and organs is enormous. Millions of Americans suffer tissue and organ loss every year due to accidents, diseases such as cancer and diabetes, and congenital abnormalities. Each year in the United States, approximately 4,000 patients awaiting a donor organ—or 11 people a day—die before one becomes available. In addition to the human toll, the estimated direct and indirect costs from tissue and organ disease and injury in the United States top $400 billion a year.

This picture may improve drastically within the next few decades, however, as a result of pioneering research being conducted at Children's Hospital, Boston. Children's researchers in the burgeoning new field of tissue engineering predict that they will be able to grow tissue in the laboratory to replace all kinds of human body parts: blood vessels, muscle, tendons, bladders, breasts and heart valves. They may even recreate entire complex organs such as livers, kidneys and lungs. "There is no reason to think that we couldn't someday recreate an entire limb or a heart," says Joseph P. Vacanti, M.D., senior associate in Surgery, clinical director of the Liver Transplantation Program and director of the Tissue Engineering Laboratory at Children's Hospital. "It's only a matter of time."

RESEARCH HIGHLIGHTS

NEW SUBSTANCE SHOWN TO BLOCK TUMOR GROWTH

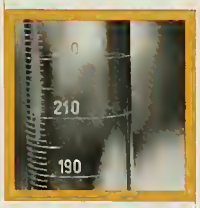
In the January 24, 1997, issue of *Cell*, a groundbreaking study by Children's researchers reported that cancerous tumors in mice treated with endostatin were reduced to microscopic dormant lesions. Endostatin, a naturally occurring protein identified by Michael S. O'Reilly, M.D., research associate in the laboratory of Judah Folkman, M.D., senior associate in Surgery and director of the Surgical Research Laboratories, is one of the most potent inhibitors of angiogenesis—the growth of blood vessels that feed tumors—yet discovered. The study offers hope that with endostatin as a therapy, cancer might someday be treated as a chronic disease rather than a life-threatening illness.

Right
Joseph P. Vacanti, M.D., founder of tissue engineering research at Children's Hospital and a pioneer in the field

Advances in tissue engineering have occurred rapidly since Vacanti and colleagues at Massachusetts Institute of Technology (MIT) and the University of Massachusetts, including his brother, Charles Vacanti, M.D., began their research more than a decade ago. Engineered skin is already approved by the Food and Drug Administration and available for patients with burns or leg ulcers. Engineered bone for cancer patients and cartilage for arthritis sufferers are

STUDY WORKS TO COMBAT HIV IN NEWBORNS WORLDWIDE

In the spring of 1997, Kenneth McIntosh, M.D., chief of the Division of Infectious Diseases and director of Children's AIDS/HIV Program, participated in the launch of a study in Thailand to determine the most effective means of preventing transmission of HIV from mothers to newborn babies in underdeveloped countries. The study compares different combinations of treatment plans with the drug AZT to identify the shortest effective course of treatment. McIntosh helped both write the grant for the National Institutes of Health and design the study, for which he continues to serve as pediatric consultant.



CLAPHAM APPOINTED HOWARD HUGHES INVESTIGATOR

In May 1997, David E. Clapham, M.D., Ph.D., chief of Basic Research for the Cardiovascular Program, was appointed a Howard Hughes Medical Institute (HHMI) investigator. Clapham, who is recognized for his landmark work in the area of cell biology, joins 10 other researchers at Children's Hospital, Boston, in membership of HHMI, one of the world's most elite medical research organizations and the largest philanthropic organization in the United States.

presently in clinical trials and may also soon become widely available. And, as a result of work done at Children's by John E. Mayer Jr., M.D., senior associate in Cardiovascular Surgery, it may be only a few years before engineered heart valves supercede the mechanical devices and pig valves currently used to replace defective human valves. Within a decade, a functioning liver may become a reality. At Children's, 26 different tissues are now in various stages of testing, including nerve cells, which may provide new hope to patients with spinal cord, brain and peripheral nerve injuries. "There is no conceptual barrier I can think of that would prevent us from creating any tissue or organ," says Vacanti.

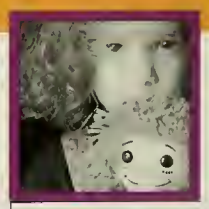
Right
Biodegradable polymer scaffold used to create a tricuspid heart valve

Creating tissue and organs is an extremely complex process that nature does effortlessly. From a single cell at conception, an entire human being develops. Researchers in the field of tissue engineering are therefore trying to recreate an environment that allows cells to do what they have mastered through millions of years of evolution. "We don't have to re-invent the wheel," says Vacanti. "Nature has figured all this out. We are striving to understand what nature does—and then imitate it."

Imitating nature as closely as possible has turned out to be the key to growing viable tissue from a patient's own cells. Early on, researchers discovered that, with some exceptions, cells would not form tissue in a petri dish. But when they were seeded onto a three-dimensional (3D) "scaffold" that was structurally similar to the organ from which they were taken, these cells went about their work, creating new tissue in a matter of weeks. "We discovered that cells need the minimal structural clues provided by the 3D scaffolding and that, given the right environment, they are remarkably adept at regenerating their tissue of origin, just as they do *in utero*," explains Vacanti.

Vacanti and his colleagues have experimented with a variety of natural and man-made materials to create the scaffolds. Among the most

RESEARCH HIGHLIGHTS *(continued)*



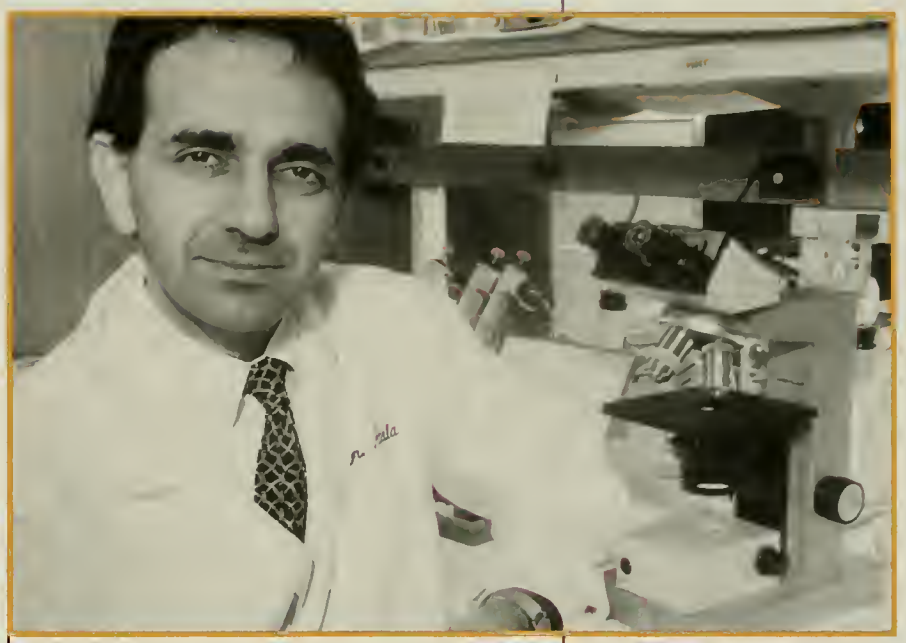
RESEARCH OFFERS HOPE FOR RESPIRATORY PATIENTS

Two studies by Children's researchers demonstrated the applications of nitric oxide (NO), a natural gas, for treating acute respiratory problems in children. In the October 1997 issue of *Anesthesiology*, David L. Wessel, M.D., chief of the Cardiac Intensive Care Unit, and Andrew M. Atz, M.D., assistant in Cardiology, reported the successful use of inhaled NO to treat acute chest syndrome (ACS), a complication of sickle cell disease that results in respiratory failure. The clinical study found that NO dilates blood vessels, permitting reoxygenation of sickled cells and improving blood oxygen levels of patients with ACS.

In the September 1997 issue of *Journal of Clinical Investigation*, Carlo Brugnara, M.D., director of the Hematology Laboratory in the Department of Laboratory Medicine, and colleagues at Massachusetts General Hospital and Brigham and Women's Hospital reported that inhaled NO improved the ability of sickled cells *in vitro* to carry oxygen. Brugnara's research suggests nitric oxide's potential as a new therapeutic treatment for sickle cell disease.

successful materials are collagen and polymers, both of which dissolve in the body, leaving the new tissue in their place. The polymer scaffolds, while not appropriate for all types of tissue, have a distinct advantage over other man-made scaffolds: They can be molded to replicate structures with highly complex internal architectures, such as livers, nerves and kidneys, using computer-assisted techniques developed by Vacanti's collaborator at MIT, Robert Langer, Ph.D.

The demand for tissue crosses all specialties. But because the majority of congenital abnormalities occur in the urinary tract, the need is especially great in urology, according to Anthony J. Atala, M.D., assistant in Urology and director of the Laboratory for Cellular Therapeutics and Tissue Engineering at Children's. One such abnormality is bladder exstrophy, in which the bladder forms outside the body. While this condition can often be surgically corrected by covering the bladder and using some of the patient's intestinal tissue to shape or enlarge it, the results are less than ideal, largely because the function of intestinal tissue is to absorb, not contain, its contents. Children who undergo this procedure often develop a host of problems, from metabolic disorders to kidney stones, and face an increased risk of cancer later in life. "The search for the ideal tissue for bladders has been ongoing for decades," says Atala.

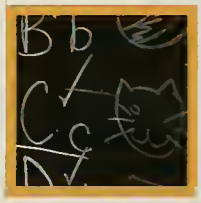


Above

Atala's own tissue engineering research over the last eight years may soon end this search. In March 1998, he began a clinical trial to test the efficacy of using engineered bladder tissue to treat disorders such as bladder exstrophy and other conditions that result in malformed bladders. "We take a

LOCK LEADS CLINICAL TRIAL OF NEW CARDIAC DEVICE

In 1997, James E. Lock, M.D., Children's cardiologist-in-chief, conducted a clinical trial to treat high-risk cardiac patients with CardioSEAL, a tiny device Lock invented that is inserted by catheter to close holes in the heart without invasive surgery. The trial is sponsored by Children's, and so far, more than 100 patients have been treated.



CORRELATION FOUND BETWEEN SECOND-HAND SMOKE AND CHOLESTEROL

In September 1997, Ellis J. Neufeld, M.D., Ph.D., assistant in Medicine (Hematology/Oncology), and colleagues at Children's reported in *Circulation* a correlation between second-hand smoke and blood cholesterol levels in children. The researchers found that children with inherited cholesterol disorders who were exposed to second-hand smoke had lower levels of HDL, or "good" cholesterol. The findings suggest that escaping a smoky environment could raise children's HDL by up to 10 percent.

pea-sized piece of tissue from the patient's bladder and expand it *in vitro* for about six weeks," Atala explains. "We then put it over a matrix made of collagen for about 10 days, and implant the matrix into the body, where it is absorbed." He adds that earlier studies done in animals have demonstrated that the reconstructed bladder grows and functions just like a normal bladder. "If successful, this will virtually replace the use of intestinal tissue for bladders in the majority of patients," he says.

The treatment of vesicoureteral reflux, a common congenital condition in which urine flows back into the kidneys, causing chronic infections and possible kidney damage, is another area that could soon be transformed by tissue engineering. A clinical trial developed by Atala, now in its second year, is testing the efficacy of using engineered cartilage cells, called chondrocytes, to create an obstruction that prevents the backflow of urine. Incontinence is yet another common urologic condition that is being treated with laboratory-grown cartilage in clinical trials.

Despite the remarkable strides in bringing laboratory discoveries into the clinical arena, Vacanti and Atala stress that researchers in the field must continue to focus on understanding the most basic mechanisms of cell growth. "What makes cells grow? What makes them tick? What makes them stop growing? What makes them differentiate?" asks Atala. "While we have made significant progress in answering these fundamental questions, we still have a lot to learn. It is essential that we understand all the secrets of cells, so we can use them to our fullest advantage."

RESEARCH HIGHLIGHTS *(continued)*

RESEARCHERS FIND GENETIC CAUSE OF ANEMIA

In the July 1997 issue of *Nature Genetics*, Nancy C. Andrews, M.D., Ph.D., assistant in Medicine (Hematology/Oncology), and colleagues reported the findings of research on mice that suggest that iron deficiency anemia can be the result of genetic alterations in a novel protein, which the researchers identified as the basis of absorption of dietary iron.

PHYSICIAN NAMED "HERO OF MEDICINE"

In a fall 1997 special issue, *Time* Magazine named Charles B. Berde, M.D., Ph.D., senior associate in Anesthesia and clinical director of the Pain Treatment Service, a "Hero of Medicine" for his innovative work in managing pain. The article also cited Berde's research, soon to go into clinical trials in the United States, on long-acting local anesthetics for surgical patients that may eliminate the need for opiates and help patients recover faster.

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TRAINING

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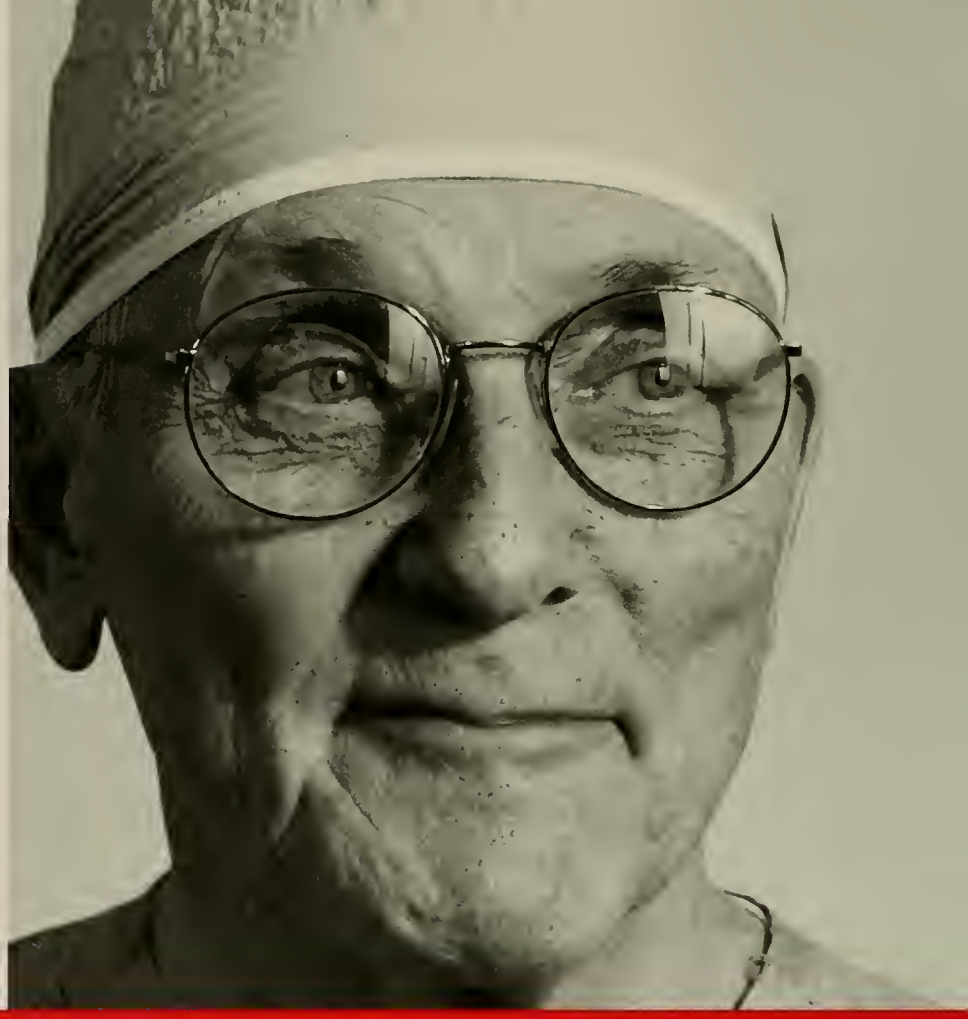


TRAINING

Above:
W. Hardy Hendren, M.D.

Teaching Human Hands To Fix Nature's Mistakes: Hendren Continues Children's Training Lineage

In the final days of World War II, W. Hardy Hendren, M.D., was perfecting skills that he would use throughout his career—as a pilot in the United States Navy. By 1946, the undergraduate, who took a leave of absence from Dartmouth College in 1943 to serve his country, had qualified as a carrier pilot, one of the most difficult jobs in the Navy. While naval aviation and pediatric surgery might seem worlds apart, Hendren, chief of Surgery at Children's Hospital for the past 16 years and a 1960 graduate of its training program, finds significant parallels between his early and later careers. "Being a pilot is very good training for becoming a surgeon," he says. "Military flying requires being able to be a good team player and a solo performer at the same time. In an airplane, which is unmercifully unforgiving of human error, you have to do things precisely and be prepared for any sort of emergency. These are some of the same lessons you have to learn as a surgeon."

From the time he was 10 years old and cut open a live frog to see what was inside, Hendren knew he wanted to be a surgeon. It was not until he attended

Inset:
Hendren with 15 of the chief surgical residents he has trained at Children's

a lecture in 1951 given by Robert E. Gross, M.D., Children's surgeon-in-chief and his future mentor, that Hendren decided he wanted to be a pediatric surgeon. He trained for the next eight years at Massachusetts General Hospital (MGH) and by 1959, when he became chief surgical resident at Children's, Hendren was already board certified in both general and cardiothoracic surgery.

Over the course of his career, Hendren has distinguished himself as both an exceptional surgeon and a pioneer in reconstructive pediatric surgery. Among his many accomplishments are the development of megaureter repair (normalizing a very large ureter to improve its function); Boston's first surgical separation of conjoined twins; and more than 180 successful reconstructions of cloacas, a severe congenital abnormality of the rectal and urogenital systems. His achievements in pediatric surgery and research have won him the respect and admiration of the global community, as well as numerous commendations, including the William E. Ladd Medal of the Surgical Section of the American Academy of Pediatrics, and

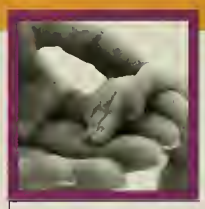
the Urology Medal of the Urology Section of the American Academy of Pediatrics.

Ranking among Hendren's greatest accomplishments, however, is his role in training the next generation of pediatric surgeons. Since becoming Children's chief of Surgery in 1982, after 22 years at the MGH, Hendren has continued the lineage of Children's-trained medical leaders established by William E. Ladd, M.D., Children's chief of Surgery from 1927 to 1945 and widely regarded as the father of pediatric surgery. In that time, Hendren has taken 17 chief surgical residents under his wing and trained them in the highest standards of pediatric surgery. As testimony to his success, all of Hendren's protégés have gone on to academic medical centers around the country, and several have become surgical chiefs at other pediatric hospitals. Although Hendren has no immediate plans to give up surgery when he steps down as chief of Surgery in June 1998, his legacy will be measured not only by his innovative contributions to the fields of pediatric surgery and pediatric urology but also by his role in expanding the reach of Children's influence around the world.

Center
Hendren with John W. DiFiore, M.D., 1997-98 chief surgical resident

"My philosophy is that you select really good people to start with and you then give them a great deal of responsibility," says Hendren, crediting this approach to Edward D. Churchill, M.D., chief of surgery and his mentor at the MGH. "Ours is the

TRAINING HIGHLIGHTS



PHYSICIANS NAMED TO PROFESSORSHIPS AT HARVARD MEDICAL SCHOOL

In 1997, Judith S. Palfrey, M.D., senior associate in Medicine (General Pediatrics) and chief of the Division of General Pediatrics, was appointed the T. Berry Brazelton Professor of Pediatrics at Harvard Medical School (HMS). Palfrey's appointment was one of the first professorial appointments in the new Clinician Scholar Track that recognizes outstanding physicians who have also improved patient care through their research and teaching. Elof Eriksson, M.D., chief of the Division of Plastic Surgery, was named the first Joseph Murray Professor of Plastic and Reconstructive Surgery at HMS.

In addition, Gary R. Fleisher, M.D., chief of the Division of Emergency Medicine; H. Royden Jones, M.D., associate in Neurology; Orah S. Platt, M.D., director of Clinical Laboratories; and Joseph P. Vacanti, M.D., senior associate in Surgery, were all appointed to full professorships at HMS in recognition of their academic contributions.

only program that allows its chief surgical residents to serve as attending physicians for all but the most complex cases, and that is one of the reasons why this is the most popular pediatric surgical training program in the country."

A pediatric surgeon must be well versed in the principles of general surgery to treat the many surgical conditions with which infants and children may be afflicted. "The problems we see in pediatric surgery are quite different from those in adult surgery, and the degree of finesse you must have when operating on infants is much greater than that which suffices for adults," says Hendren. "It is gratifying to see how the chief residents' surgical skills and techniques develop in their time here. They become much gentler and better able to take care of the delicate reconstructive work this specialty requires."

The training methods Hendren uses, indeed, have become foundations for training programs established by his former apprentices across the country. N. Scott Adzick, M.D., chief of Surgery at Children's Hospital of Philadelphia and 1988 chief surgical resident, cites Hendren as his inspiration for entering the field and for the way he now trains his own chief residents—much as Gross and Churchill were for Hendren. During his residency, Adzick learned from Hendren that in the operating room there was no benefit in trying to beat the clock or cutting corners.

NEW MODEL OF MEDICAL SERVICE DEVELOPED

In 1997, a multidisciplinary Clinical Advisory Group within the Department of Medicine developed a plan to reorganize clinical services at Children's. The plan called for integrating care and teaching across inpatient and ambulatory areas, with general pediatric and specialty teams guided by outstanding clinician-scholars.

PIZZO NAMED HARVARD MEDICAL SCHOOL FACULTY DEAN

In January 1997, Philip A. Pizzo, M.D., physician-in-chief, was named faculty dean for Academic Programs for Children's Hospital at Harvard Medical School (HMS). In this newly created role, Pizzo represents Children's faculty in the academic programs carried out jointly with HMS and serves as the liaison between the Office of the Dean at HMS and the faculty at Children's. The position also offers the opportunity to build training and research partnerships with other Harvard-affiliated hospitals.

"He is meticulous in patient care, and teaches you never to leave the operating room unless you know everything was done right," says Adzick. "I give my chief residents the same lessons and responsibility Dr. Hendren gave me."

Although the two-year surgical residency has a reputation for being a grueling experience, Terry Buchmiller, M.D., chief of Pediatric Surgery at Harbor–UCLA Medical Center, says she has never had a more rewarding experience than her residency under Hendren. "Dr. Hendren is the epitome of a teacher. He takes you under his wing and mentors you not only as a surgeon but as a human being," says Buchmiller, who became the first woman graduate of the program in 1997 [see next page]. Buchmiller says Hendren has prepared her for nearly every contingency she will encounter in her career. For those few unfamiliar problems that arise, she says she is still able to call upon Hendren for advice and consultation.

Hendren's mentorship extends beyond training residents at Children's. He has entertained scores of visiting surgeons from around the world and has traveled the globe sharing his expertise. Colleagues have remarked on Hendren's unusually generous dissemination of information and research, but to him, this is just another way of reaching out and helping to cure children. "Physicians visit us—sometimes for a week, sometimes a month or a year.

Center

Skilled and precise, Hendren's hands fix nature's mistakes.

TRAINING HIGHLIGHTS *(continued)*

NEONATOLOGY PROGRAMS RESTRUCTURED

In May 1997, two new divisions were formed within the Department of Medicine. The Division of Developmental and Newborn Biology focuses on developmental biology and basic research related to newborn medicine, in order to take advantage of the dramatic changes occurring in these areas of investigation. Merton Bernfield, M.D., was named chief of this new division. Additionally, the Division of Newborn Medicine was created and will provide academic oversight of the neonatology programs at Children's, Brigham and Women's Hospital and Beth Israel Deaconess Medical Center, as well as of the fellowship program in neonatology.

They watch everything we do, they go to our caucuses and then they take those lessons home with them," says Hendren. "It always thrills me when I get letters from people telling me that they have put into effect the lessons they learned here." It can be said that Hendren's influence has also extended into his home: three of his sons are surgeons, his late daughter, Sandra, was a nurse, and his youngest son is a lawyer specializing in health care issues. Humbly, Hendren credits the success of their children in large measure to Eleanor, his wife of 51 years.

In the five decades since Hendren earned his Navy wings of gold, naval aviation has evolved from the prop-engine aircraft he flew to today's powerful supersonic jets. Pediatric surgery has evolved in a similar way, and the field today is performing miracles unimaginable 50 years ago. "We never envisioned these enormously complicated operations, the growth of laparoscopic surgery, the refinement of pediatric anesthesia, and the wonderful post-operative care we have today," Hendren says. "The training has become more encompassing and much more intense. But the underlying lesson remains the same: I always tell my residents that it is a great privilege to be asked to operate on someone, and we must live up to that privilege by doing the best possible job we can in the operating room."

FIRST WOMAN CHIEF SURGICAL RESIDENT GRADUATES

In June 1997, the Department of Surgery graduated its first woman chief resident. Under the mentorship of W. Hardy Hendren, M.D., chief of Surgery, Terry Buchmiller, M.D., completed her subspecialty training in pediatric surgery. Women currently comprise less than ten percent of all pediatric surgeons in the United States.

PHYSICIAN RECOGNIZED FOR MENTORING

Joseph A. Majzoub, M.D., chief of the Division of Endocrinology and associate professor of Pediatrics and Medicine at Harvard Medical School (HMS), was one of two recipients of the Clifford Barger Award for Excellence in Mentoring in the fall of 1997. The award is given annually to an HMS faculty member or members who excel in mentoring students, post-doctoral candidates and faculty. Majzoub was chosen from a field of more than 100 nominees that also included 10 other Children's physicians and staff members.

Reflections on Dr. Hendren

Judah Folkman, M.D., senior associate in surgery, director of Children's Surgical Research Laboratories and surgeon-in-chief emeritus, served as Children's Hospital surgeon-in-chief from 1968 to 1982.

Surgeons, like chess players, are ranked by performance. In the top ranks are the surgical geniuses. Above them is the handful of surgeons on whom colleagues bestow the accolade "magician." Dr. Hardy Hendren is the only pediatric surgeon in the world so acknowledged.

It is not only Dr. Hendren's craftsmanship that other surgeons admire, but also his unique clinical judgment and his desire to impart his knowledge to colleagues. Super-talented individuals who work at the rarefied heights of their profession often find it tiresome to share their gift with younger associates. Dr. Hendren is the exception: His unflagging delight in teaching younger surgeons to develop their skills to his level is legendary. He is impatient only with those who are not interested in trying to attain his standard of care. And, it is his same dissatisfaction with certain conventional procedures that drives him to develop improved surgical methods to completely rehabilitate his young patients. This is why one hears the many languages of Europe, Asia, the Middle East and South America while making rounds on Dr. Hendren's patients. Parents will bring their sick children any distance to see him.

Dr. Hardy Hendren has built a magnificent Department of Surgery and has trained an outstanding group of pediatric surgeons, many of whom have assumed leadership positions at other universities and medical centers. He has recruited a brilliant faculty of young surgeons and has nurtured them so that they will be able to continue this department's tradition of excellence. He has provided fertile soil for research and has always had a keen curiosity about our undertakings in the Surgical Research Laboratories. With his support, the fields of angiogenesis research and tissue engineering have flourished at Children's Hospital. I speak for everyone in the Department of Surgery when I say that we and Children's Hospital are indeed fortunate that Dr. Hendren has been our mentor and leader over the past 15 years.

COMMUNITY SERVICE

COMMUNITY SERVICE

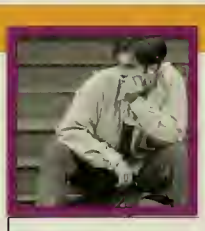
First Steps: Family Network Collaborative Reaches Out To Families

Late in 1996, Anna Tate's life had hit rock bottom. She was pregnant, homeless and on drugs. Her young son and daughter had been placed in foster homes because she could not adequately care for them. She had no job, no money and no one to turn to for help.

Then Michelle Green, a family health advocate with First Steps: Family Network Collaborative, entered Anna's life and helped turn it around. Today, Anna and her toddler, Luis, are safe and comfortable in the St. Ambrose Family Inn, a shelter in Dorchester, Mass., for homeless women, and are on a waiting list for subsidized housing. Anna is off drugs, is receiving regular health care for herself and Luis and has even applied for a part-time job. She is also a better parent—she reads to Luis every day, takes him for regular visits to the pediatrician and knows how to cope when, like all teething babies, he cries.

Green has helped change the lives of many families, most headed by teenage or single mothers, in the two years since she joined First Steps, an outreach program based at Martha Eliot Health Center (MEHC), Children's Hospital's community health center in Jamaica Plain, Mass. Funded in part by the Boston Healthy Start Initiative and the Massachusetts Department of Public Health, First Steps (begun in 1991 as the Family Network Program) provides a wide range of services to pregnant and parenting women and their young children, up to age 3, who are at high risk for adverse health and developmental outcomes. "Our clients tend to be the hardest to reach," says

COMMUNITY SERVICE HIGHLIGHTS



HOSPITAL GIVES AWARD FOR IMPROVING YOUNG LIVES

In partnership with the Center for Child Health at Harvard School of Public Health and the City of Boston, Children's Hospital awarded the first Harvard Award for Excellence in Children's Health in January 1997. Established to recognize one community organization each year for innovative efforts to improve the lives of children and adolescents, the $10,000 award was given to Bridge Over Troubled Waters, an outreach organization providing health care, education, emergency shelter, housing and job training to at-risk youth.

LEGISLATORS HOLD PRESS CONFERENCES AT HOSPITAL

Two press conferences were held at Children's in February 1997 to announce legislation supporting families and children. U.S. Senator John Kerry and U.S. Representative Joseph P. Kennedy II visited the hospital to promote a bill, co-sponsored with U.S. Senator Edward M. Kennedy, to establish a subsidy program for working families, who are not covered through their employers or Medicaid, to acquire private health insurance for their children. Also that month, Governor William F. Weld and Lieutenant Governor Paul Cellucci introduced at Children's a bill that would prevent convicted batterers from gaining child custody.

Francine Azzara, R.N., M.P.H., director of Women's Health Services at MEHC. "Many have substance-abuse issues or have been discharged from other programs due to non-compliance, or they are homeless, depressed or without adequate financial or social resources," she says. Most clients live in Jamaica Plain or in nearby Roxbury, although First Steps is also available to families from other areas of Boston. According to Azzara, the voluntary program serves approximately 200 families a year.

Above
Michelle Green, left, with Anna Tate and her son Luis.

BRAZELTON PARTICIPATES IN WHITE HOUSE CONFERENCE

In April 1997, T. Berry Brazelton, M.D., director emeritus of the Child Development Unit, participated in the "White House Conference on Early Childhood Development and Learning: What the Newest Research on the Brain Tells Us About Our Youngest Children." Brazelton was one of seven keynote speakers at the conference, which was hosted by President and Mrs. Clinton and received widespread public attention.

PIZZO TESTIFIES BEFORE SENATE

In July 1997, Philip A. Pizzo, M.D., physician-in-chief, was invited to testify on pediatric research before the U.S. Senate's Committee on Labor and Human Resources Subcommittee on Public Health and Safety. Pizzo called for increased funding of pediatric research, specifically by increasing the budget of the National Institutes of Health (NIH), which is currently working to support pediatric research through its "New Pediatric Research Initiative." As a result of Pizzo's efforts and those of the National Association of Children's Hospitals and Related Institutions and other advocates, Congress appropriated additional funding for the NIH initiative.

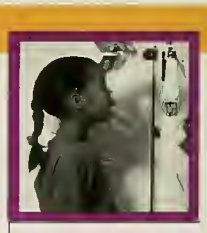
Right
Martha Eliot Health Center

First Steps advocates visit their clients with children under 6 months old at least once a week. Since Green started working with Anna, she has helped the young mother get into a shelter and onto welfare. She babysits for Luis when Anna goes to the doctor, brings Luis books and toys, teaches Anna about child development, and even stops by occasionally on her days off to lend a helping hand. This kind of intensive support, which she gives to all her clients, has paid off. "Anna has changed a lot," says Green. "Eighteen months ago, she was really down and out. Now, she's motivated and wants more out of life for herself and Luis." Anna, in turn, recognizes the great difference Green has made in her life. "Michelle has helped us in so many ways," she says. "She's really been like a sister to me."

This kind of personal relationship is possible, says Green, because she is open about her own past struggles. "I can relate to my clients' problems because I've been through a lot of them myself," she says. "They know I'm not here to judge, but to show them another way of doing things—a way that works. They also see me as a role model. They can look at me and say, 'Hey, if Michelle can do it, so can I.'"

The goals of First Steps, according to Joseph M. Carrillo, M.D., MEHC executive medical director, are to improve birth outcomes by identifying women at risk and providing them with the services they need, to foster and improve child health during the critical first three years of life, to prevent child abuse and neglect, and to prevent developmental delays though early identification and intervention. "To make any inroads into improving the

COMMUNITY SERVICE HIGHLIGHTS *(continued)*



MARTHA ELIOT SEEKS TO INSURE 1,000 CHILDREN

In September 1997, Martha Eliot Health Center kicked off its "1,000 More Healthy Kids" campaign with a festival at the center in Jamaica Plain, Mass. The year-long campaign aims to enroll approximately 1,000 uninsured patients up to age 19 in free or low-cost health care coverage, under the state of Massachusetts' new Health Care Access Law. Nearly 100 children were signed up for coverage at the festival.

HOSPITAL PROMOTES INJURY PREVENTION

In 1997, Children's promoted two safety initiatives in Boston through its Injury Prevention Program. Children's and Martha Eliot Health Center are sponsors of *BuckleUp Boston!*, a program that gives children's car seats, and training on how to use them, to Boston families. In September, Children's and the city's injury prevention program launched the "Adopt-a-Building" campaign, which works to prevent children from falling out of windows by distributing window guards to Boston landlords.

health and safety of children, we need to first pay attention to the mother's well-being," he says. "Of course, it's important to provide access to quality prenatal and pediatric care. But we must also pay attention to the mother's physical and mental health, as well as her basic needs for housing and food, so that she can be a good, nurturing parent and make her kids feel secure and loved."

First Steps' approach is supported by 20 years of research. According to Healthy Families America, a home-visiting initiative of the National Committee to Prevent Child Abuse, providing education and support services to parents around a baby's birth and for several years thereafter significantly reduces the risk of child abuse and contributes to good parenting. Research further indicates that families receiving intensive home-visitor services demonstrate other positive changes, including the consistent use of preventive health services, increased high school completion rates for teenage mothers, higher employment rates, lower welfare use and fewer subsequent pregnancies.

Left
From left, Francine Azzara, R.N., M.P.H., Michelle Green and Bettie Fordham-Nolan, R.N., discuss a First Steps case.

According to Bettie Fordham-Nolan, R.N., coordinator of First Steps, the program's multidisciplinary staff includes family health advocates, maternal child/health nurses, and social workers and psychologists, all of whom are supported by the staff and services of MEHC, as well as many other community and state agencies. "One of the unique features of the program," she emphasizes, "is that it is based in a health center and provides not only in-home social support, but also much-needed medical, psychosocial and early-intervention services."

In addition to home assessments and monitoring of both mother and child by a maternal/child health nurse, First Steps provides parenting education and support, mental health and substance-abuse assessment and referrals, breastfeeding support, and transportation for mothers; and immunizations and preventive care

HOSPITAL PARTNERS WITH UNITED WAY

In autumn 1997, Children's began a new employee fund-raising campaign in partnership with the United Way of Massachusetts Bay. Replacing Children's One For All Fund, the new drive raises funds through employee payroll deductions for both United Way-sponsored and independent programs, many of which help children and families.

FAMILY VIOLENCE WORKING GROUP FORMED

In January 1997, the multidisciplinary Children's Hospital Family Violence Working Group was formed to implement a set of recommendations put forth by the Conference of Boston Teaching Hospitals Domestic Violence Task Force, which was chaired by David S. Weiner, Children's president and chief executive officer. These recommendations focused on hospitals as both providers of care to victims of violence as well as employers of victims and perpetrators of violence. In October, the Working Group began the first phase of its curriculum to train all hospital staff and employees to recognize and help victims of domestic violence within the Children's community.

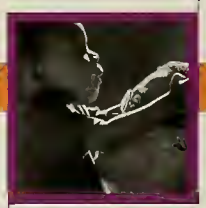
for their newborns. Referrals to services that help address basic needs, such as food and housing, are also offered. Home visits are generally made at least every week until a child is 6 months old, and then on a less frequent basis until he or she is 3 years old. Education and support groups are offered at MEHC and other community sites.

Below
Joseph M. Carrillo, M.D

The success of First Steps can be measured by several yardsticks. One is its recent four-year accreditation by Healthy Families America, whose goal is to ensure prenatal and postpartum education and support for all new parents, particularly those facing the greatest challenges. Another yardstick is the program's measurable results: 100 percent of children in First Steps are immunized, 100 percent of mothers and children receive primary care, and 65 percent of mothers breastfeed their babies. But the program's true success is probably best measured by the experience of Anna Tate: "I'm a better person than I was 18 months ago, and because of that, I'm a better mother."

CHILDREN'S SIGNS AGREEMENTS WITH HEALTH CENTERS

In autumn 1997, Children's announced agreements with five Boston community health centers to coordinate patient care between the centers and the hospital, and to build programs and services within each community. The health centers include Joseph M. Smith Health Center in Allston; South End Community Health Center in the South End; Dimock Community Health Center in Roxbury; and Bowdoin Street Health Center and Upham's Corner Health Center in Dorchester.



COMMUNITY SERVICE HIGHLIGHTS *(continued)*

HOSPITAL PRESIDENT SERVES ON NATIONAL COMMITTEE

In 1997, David S. Weiner, Children's president and chief executive officer, was chosen to serve on the 12-person National Committee on Children, Health Insurance, and Access to Care. The committee, supported in part by the National Academy of Sciences' Institute of Medicine and its Commission on Behavioral and Social Sciences and Education, was convened to examine and report on health insurance coverage for children and children's access to care.

JACKSON APPOINTED TO YEAR 2000 COMMISSION

Deborah C. Jackson, senior vice president for Network Development and Community Services, was named to Boston's Year 2000 Commission by Mayor Thomas M. Menino in May 1997. Jackson was chosen to join other civic leaders in planning events and initiatives for the year 2000 that promote growth and visibility for the city of Boston.

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STATISTICAL &
FINANCIAL REPORT

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STATISTICAL AND

STATISTICS

	1997	1996
PATIENT:		
Number of licensed beds	325	325
Discharges	16,499	16,073
Patient days	84,017	83,617
Observation days	2,155	2,071
Average stay in days	4.62	4.72
Clinic visits	235,027	223,808*
Emergency Services visits	50,414	48,773
SURGICAL PROCEDURES:		
Inpatient	8,196	7,981
Outpatient	7,033	6,357
TOTAL	15,229	14,338
Radiology procedures performed	90,026	96,374
Laboratory tests	1,316,044	1,291,878

**restated for 1996*

PERSONNEL:		
Active medical staff	706	658
Active dental staff	20	21
Affiliate medical staff	38	40
Associated scientific staff	236	219
Courtesy staff	301	282
House staff	604	613
Consultants	68	64
Emeriti	42	32
Visiting staff	7	2
Nursing staff	800	847
Other full-time employees	1,871	1,563
Other part-time employees	557	884
Volunteers	892	850

FINANCIAL REPORT

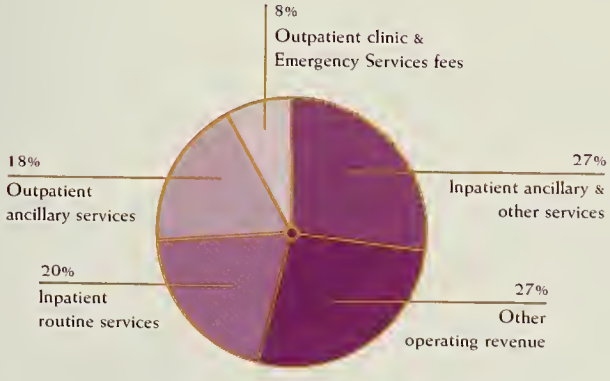
STATEMENT OF REVENUES AND EXPENSES

and funds used for capital additions years ending September 30, 1997 and 1996 (in thousands of dollars)

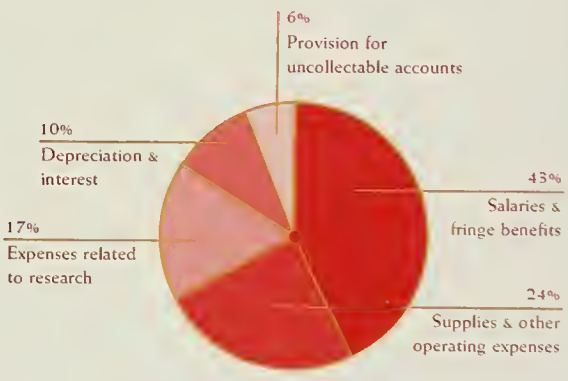
	1997	1996
REVENUES:		
Gross patient services revenue	$ 344,233	$ 332,976
Deductions from patient services revenue	(124,132)	(102,002)*
Net patient services revenue	220,101	230,974
Other operating revenue	130,569	99,086
TOTAL OPERATING REVENUES	350,670	330,060
OPERATING EXPENSES:		
Salaries and wages	125,300	120,371
Operating expenses	108,528	105,522
Depreciation and amortization	29,896	28,626
Interest	6,287	5,980
Provision for uncollectable accounts	21,488	10,412*
Expenses related to research	61,042	57,597
TOTAL OPERATING EXPENSES	352,541	328,508
Surplus from patient care operations	(1,871)	1,552
Prior-year settlements	(257)	566
EXCESS OF EXPENSES OVER REVENUES	$ (2,128)	$ 2,118
Capital additions	36,127	26,259

**restated for 1996*

SOURCES OF REVENUES



DISTRIBUTION OF EXPENSES



CONSOLIDATED BALANCE SHEET

years ending September 30, 1997 and 1996 (in thousands of dollars)

	1997	1996
ASSETS:		
Current assets:		
Cash	$ 400	$ 63
Accounts receivable, net	76,654	75,584
Inventories	2,679	1,449
Prepaid expenses	1,165	2,009
Current portion of assets whose use is limited	6,930	6,558
Due from parent	0	7,185
TOTAL CURRENT ASSETS	87,828	92,848
Assets whose use is limited:		
Under deferred compensation agreements	8,927	8,036
Under long-term debt agreements	356	334
Unamortized bond issuance fees	1,249	1,359
Plant, property and equipment, net	242,751	236,262
TOTAL ASSETS	$341,111	$338,839
LIABILITIES AND NET ASSETS:		
Current liabilities:		
Current portion of long-term debt	$ 3,955	$ 4,390
Accounts payable and accrued expenses	54,378	51,822
Due to third-party payors	4,556	4,261
Due to parent	9,458	—
Funds held for others	2,656	2,199
TOTAL CURRENT LIABILITIES	75,003	62,672
Long-term debt, excluding current portion	114,342	118,149
Deferred compensation	8,927	8,036
Long-term portion of estimated third-party liabilities	2,177	7,191
Deferred revenue	6,876	8,888
Reserve for medical malpractice	2,752	6,318
TOTAL LIABILITIES	210,077	211,254
Net assets:		
Unrestricted	129,880	126,621
Temporarily restricted	1,154	964
TOTAL NET ASSETS	131,034	127,585
TOTAL LIABILITIES AND NET ASSETS	$341,111	$338,839

Children's licenses some of its research discoveries to companies for research and/or commercial development, and in return sometimes receives equity, either as capital stock or as options to buy capital stock, as partial consideration for a license. In fiscal 1997, Children's owned license-based equity in the following companies under such arrangements: Boston Life Sciences, Inc., BioMorphics Group, Inc., EntreMed, Inc., ProCell Pharmaceuticals, Inc., and UroSurge, Inc.

PEOPLE, DEPARTMENTS AND INSTITUTIONAL HIGHLIGHTS

Children's Hospital, Boston

DEPARTMENTS, DIVISIONS AND PROGRAMS

Department of Anesthesia

Paul R. Hickey, M.D., *anesthesiologist-in-chief*

Mark A. Rockoff, M.D., *associate anesthesiologist-in-chief*

Anesthesia Services
Babu V. Koka, M.B., B.S., *clinical director*

Cardiac Anesthesia Service
Peter C. Laussen, M.B., B.S., *co-director*
Francis X. McGowan Jr., M.D., *co-director*

Division of Respiratory Care
John H. Arnold, M.D., F.A.A.P., *medical director*

Extramural Anesthesia Service
Robert S. Holzman, M.D., *director*

Multidisciplinary Intensive Care Unit
Robert D. Truog, M.D., *director*

Pain Treatment Service
Charles B. Berde, M.D., Ph.D., *director*

Preoperative Clinic
Lynne R. Ferrari, M.D., *director*

Post-Anesthesia Care Unit
Richard H. Blum, M.D., *director*

Sedation Services
Constance S. Houck, M.D., *clinical director*

Department of Cardiology

James E. Lock, M.D., *cardiologist-in-chief*

Jane W. Newburger, M.D., M.P.H., *associate cardiologist-in-chief*

Basic Cardiovascular Laboratories
David E. Clapham, M.D., Ph.D., *chief*

Cardiac Intensive Care Unit
David L. Wessel, M.D., *chief*

Electrophysiology Laboratories
Edward P. Walsh, M.D., *chief*

Inpatient Service
Michael D. Freed, M.D., *chief*

Invasive Cardiology
John F. Keane, M.D., *chief*

Noninvasive Cardiovascular Laboratories
Steven D. Colan, M.D., *chief*

Outpatient Service
David R. Fulton, M.D., *chief*

Department of Cardiovascular Surgery

Richard A. Jonas, M.D., *cardiovascular surgeon-in-chief*

Department of Dentistry

Stephen Shusterman, D.M.D., *dentist-in-chief*

Howard L. Needleman, D.M.D., *associate dentist-in-chief*

Department of Medicine

Philip A. Pizzo, M.D., *physician-in-chief*

Frederick H. Lovejoy Jr., M.D., *associate physician-in-chief*

Division of Adolescent/Young Adult Medicine
S. Jean Emans, M.D., *chief*

Division of Newborn Medicine
Philip A. Pizzo, M.D., *acting chief*

Division of Developmental and Newborn Biology
Merton Bernfield, M.D., *chief*

Division of Emergency Medicine
Gary R. Fleisher, M.D., *chief*
Michael W. Shannon, M.D., M.P.H., *associate chief*

Division of Endocrinology
Joseph A. Majzoub, M.D., *chief*

Clinical Endocrinology
Joseph I. Wolfsdorf, M.D., *director*

Division of Gastroenterology/Nutrition
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Clinical Gastroenterology
Alan M. Leichtner, M.D., *director*

Clinical Nutrition Service
Christopher P. Duggan, M.D., M.P.H., *director*

General Clinical Research Center
Joseph A. Majzoub, M.D., *acting chief*

Division of General Pediatrics
Judith S. Palfrey, M.D., *chief*

Henry H. Bernstein, D.O., *associate chief*

Leonard A. Rappaport, M.D., *associate chief*

Child Development Unit
Edward Z. Tronick, Ph.D., *director*

Clinical Effectiveness Program
Charles J. Homer, M.D., M.P.H., *director*

Coordinated Care Service for Children with Complex Medical Needs
Ellen Elias, M.D., *director*

INSTITUTIONAL HIGHLIGHTS

CHILDREN'S BUILDS RELATIONSHIPS WITH COMMUNITY HOSPITALS

In July 1997, Children's Hospital, Boston, entered into an agreement with Beverly Hospital in Beverly, Mass., under which Children's physicians direct Beverly's inpatient pediatric service and special care nursery, as well as staffing several pediatric specialty clinics. In addition, three Children's residents are now assigned full-time rotations at Beverly Hospital as part of their training program. Earlier in 1997, Children's specialists in pulmonary medicine, cardiology, gastroenterology and neurology began providing outpatient specialty care at South Shore Hospital in South Weymouth, Mass., where Children's physicians have staffed the pediatric intensive care unit since 1995.

Developmental and Learning Programs
Leonard A. Rappaport, M.D., *director*

Family Development Program
Eli H. Newberger, M.D., *director*

Institute for Community Inclusion
William E. Kiernan, Ph.D., *director*

Martha Eliot Health Center
Joseph M. Carrillo, M.D., *executive medical director*

Medical Informatics
Isaac S. Kohane, M.D., Ph.D., *director*

Pediatric Health Associates
Henry H. Bernstein, D.O., *director*

Pharmacology/Toxicology Program
Alan D. Woolf, M.D., M.P.H., *director*

Division of Genetics
Louis M. Kunkel, Ph.D., *chief*

Clinical Genetics
Bruce R. Korf, M.D., Ph.D., *director*

Harvard Pilgrim Health Care Services at Children's Hospital
John W. Graef, M.D., *chief*

Division of Hematology/Oncology
Steven J. Burakoff, M.D., *co-chief*

Samuel E. Lux IV, M.D., *co-chief*

Bone Marrow Transplantation Service
Barbara E. Bierer, M.D., *director*

Eva C. Guinan, M.D., *co-director*

Clinical Hematology
Ellis J. Neufeld, M.D., Ph.D., *director*

Inpatient Oncology Service
Amy L. Billett, M.D., *clinical director*

Pediatric Oncology
Holcombe E. Grier, M.D., *director*

Transfusion Medicine/Hemotherapy
Karen Quillen, M.D., *acting director*

Division of Immunology
Raif S. Geha, M.D., *chief*

Allergy
Lynda Schneider, M.D., *director*

Clinical Immunology
Mitchell R. Lester, M.D., *director*

Dermatology
Stephen E. Gellis, M.D., *director*

Immunology
Raif S. Geha, M.D., *director*

Rheumatology
Robert P. Sundel, M.D., *director*

Division of Infectious Diseases
Kenneth McIntosh, M.D., *chief*

Clinical Infectious Diseases
Sandra Burchett, M.D., *director*

Laboratory of Molecular Medicine
Stephen Harrison, Ph.D., *director*

Division of Nephrology
William E. Harmon, M.D., *chief*

Clinical Nephrology
John T. Herrin, M.B.B.S., F.R.A.C.P., *director*

Renal Research Laboratories
H. William Harris, M.D., Ph.D., *director*

Division of Pulmonary Medicine
Mary Ellen B. Wohl, M.D., *chief*

Ina Sue Perlmutter Laboratory for Cystic Fibrosis Research
Jeffrey M. Drazen, M.D., *director*

Medical Services and Community Medicine
Frederick H. Lovejoy Jr., M.D., *chief*

Blackfan Service for School-Age Children
John R. Knight, M.D., *chief*

Clinical Pediatrics
John P. Cloherty, M.D., *director*

Clinical Research Center Service
Walter Robinson, M.D., *director*

Community Medicine
William E. Harmon, M.D., *acting director*

Janeway Service for Adolescents
Donald A. Goldmann, M.D., *chief*

Medical Intensive Care Service
Robert D. Truog, M.D., *chief*

Rotch Service for Infants and Toddlers
Edward J. O'Rourke, M.D., *chief*

Richmond Medical Service (Psychiatry)
John R. Knight, M.D., *director*

Short Stay Service
Marc N. Baskin, M.D., *chief*

Department of Neurology

Joseph J. Volpe, M.D., *neurologist-in-chief*

Division of Epilepsy and Clinical Neurophysiology
Gregory L. Holmes, M.D., *director*

Division of Neuroscience
Michael E. Greenberg, Ph.D., *director*

CHILDREN'S SIGNS AGREEMENTS WITH CAREGROUP, CARITAS CHRISTI

In May 1997, Children's signed a non-exclusive agreement with CareGroup, Inc., to explore collaboration on practice development, patient care, community service initiatives, managed care contracting and marketing. CareGroup is the parent company of Beth Israel Deaconess Medical Center and Mount Auburn, New England Baptist, Deaconess-Glover, Deaconess-Nashoba and Deaconess-Waltham hospitals. In July, Children's signed a collaborative agreement with Caritas Christi Health Care System for Children's to provide pediatric consultation to the newborn intensive care unit at St. Elizabeth's Medical Center in Boston, as well as specialty pediatric services to Caritas Christi member hospitals in Fall River, Methuen and Dorchester, Mass.

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Clinical Pediatric Neurosurgery
R. Michael Scott, M.D., *director*

Neuroscience Laboratory in Neurosurgery
Larry Benowitz, Ph.D., *director*

Department of Ophthalmology

Richard M. Robb, M.D., *ophthalmologist-in-chief*

Department of Orthopaedic Surgery

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Division of Sports Medicine
Lyle J. Micheli, M.D., *director*

Department of Otolaryngology and Communication Disorders

Gerald B. Healy, M.D., *surgeon-in-chief for clinical affairs and otolaryngologist-in-chief*

Trevor J.I. McGill, M.D., *associate otolaryngologist-in-chief*

Audiology
Marilyn Neault, Ph.D., *director*

Communication Enhancement Center
Howard C. Shane, Ph.D., *director*

Longwood Skull Base Program
Ivo P. Janecka, M.D., *director*

Department of Pathology

Ramzi S. Cotran, M.D., *pathologist-in-chief*

Douglas C. Anthony, M.D., Ph.D., *associate pathologist-in-chief*

Department of Psychiatry

William R. Beardslee, M.D., *psychiatrist-in-chief*

David R. DeMaso, M.D., *associate psychiatrist-in-chief*

Division of Psychology
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Department of Radiation Oncology

Karen C. Marcus, M.D., *chief*

C. Norman Coleman, M.D., *chief, Joint Center for Radiation Therapy*

Department of Radiology

Robert L. Lebowitz, M.D., *acting radiologist-in-chief*

Division of Body Imaging
George A. Taylor, M.D., *chief*

Division of Diagnostic Radiology
Robert H. Cleveland, M.D., *director*

Division of Neuroradiology
Patrick D. Barnes, M.D., *chief*

Division of Nuclear Medicine
S.T. Treves, M.D., *chief*

Division of Vascular/Interventional Radiology
Patricia E. Burrows, M.D., *chief*

Department of Surgery

W. Hardy Hendren, M.D., *chief*

Surgical Research Laboratories
Judah Folkman, M.D., *director*

Trauma Center
Dennis P. Lund, M.D., *director*

Division of Gynecology
Marc R. Laufer, M.D., *chief*

Division of Plastic Surgery
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Department of Urology

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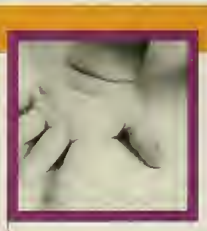

HOSPITAL LAUNCHES ADVERTISING CAMPAIGN

Children's launched an advertising campaign in the fall of 1997 to raise awareness of the hospital's world-class care and accessibility for all children. Featuring the slogan "A Reason to Believe," the campaign appeared in print, radio and television outlets, and on banners displayed outside Children's, its satellite locations and affiliated community hospitals in Beverly and Winchester. Internally, the campaign's message was shared with Children's staff and employees through posters and t-shirts.

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Volunteer Service

In 1997, Children's Hospital was served by a corps of 892 volunteers who provided 86,666 hours of service. The volunteers listed below completed 10 or more years of service in 1997.

Argiro Aghiorgoussis *14*
Joseph Bassett *24*
Robert Begin *20*
Marian Clark *32*
Laura Clarke *13*
JoAnn DiSalvo *15*
Rose DiSanto *12*
Polly Dunn *14*
Fred Feldmesser *16*
Clyde Forde *15*
Edna Mae Foreman *20*
Scott Freedland *11*
Anne Gamble *17*
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Mary Georgenes *18*
Marilyn Goldberg *20*
Priscilla Gray *14*
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Sheldon Kovitz *10*
Irene Levine *10*
Charles Lloyd *23*
Joshua Margolis *11*
Gwen Muldoon *13*
Dick O'Shea *17*
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Bess Pappas *23*
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Karen Roehr *10*
Mae Rosenberg *36*
Clara Sheskey *15*
Lillian Shulman *40*
Katherine Speliotis *15*
Patricia Squire *16*
Jack Stuart *11*
Greely Summers *20*
Josephine Worrell *15*

How You Can Help

When you **support** *Children's Hospital,*

you are giving hope to sick children

everywhere. The **kindness** *and generosity*

of one person has the **power** *to make a*

world of difference in young lives.

Whenever a child is in need, whether from around the corner, across the country or on the other side of the world, Children's must always be here, providing compassionate, life-saving treatments, ground-breaking research and the very best medical care, even when families cannot afford to pay. Your support helps to sustain Children's as the best pediatric hospital in the country and also serves as inspiration to those who are dedicated to the health and well-being of children. As you consider the following opportunities to make a philanthropic gift, please remember that every contribution makes a difference.

- Support Children's Hospital with a donation of cash, appreciated securities or personal property.
- Remember Children's Hospital through a bequest in your will.
- Honor someone special or recognize an important event, such as a birthday, wedding or graduation, with a memorial or tribute gift.
- Organize a special event in your community to raise funds for Children's.
- Create an endowment or named fund designated to a field of research or patient care that is of special interest to you.
- Designate Children's Hospital through your employer's matching gift program or through a payroll giving program.
- Purchase Children's Hospital holiday cards.
- Support the WBZ-Children's Hospital Fund during the annual Children's Hospital Telethon on News 4 New England in December.
- Plan a gift that provides income for life, such as a gift annuity or charitable remainder trust.

For more information about any of the above opportunities, please call the Office of Development, Children's Hospital, Boston, at (617) 355-6890, or visit the hospital's website at www.childrenshospital.org/development.

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